ORAL ARGUMENT NOT YET SCHEDULED
No. 15-1328

United States Court of Appeals for the D.C. Circuit

MEXICHEM FLUOR, INC.,

Petitioner,

v.

ENVIRONMENTAL PROTECTION AGENCY,

Respondent,

CHEMOURS COMPANY FC, LLC, ET AL.,

Intervenors.

JOINT PAGE-PROOF BRIEF OF PETITIONERS MEXICHEM FLUOR, INC. AND ARKEMA INC.

On Petition for Review from the United States Environmental Protection Agency

Consolidated with No. 15-1329

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

1. Parties. The parties in No. 15-1328 are petitioner Mexichem Fluor, Inc., respondent Environmental Protection Agency, and intervenors The Chemours Company FC, LLC, Honeywell International, Inc., and Natural Resources Defense Council. The parties in No. 15-1329 are petitioner Arkema Inc., respondent Environmental Protection Agency, and intervenors The Chemours Company FC, LLC, Honeywell International, Inc., and Natural Resources Defense Council.

Pursuant to Federal Rule of Appellate Procedure 26.1 and D.C. Circuit Rule 26.1, petitioners certify as follows:

Arkema Inc. is a wholly owned subsidiary of Arkema Delaware, Inc. There are no publicly held companies that own 10% or more of the stock of Arkema Inc. However, Arkema Inc. is indirectly owned by Arkema, S.A., a French public company.

Mexichem Fluor, Inc. is a Delaware corporation. Mexichem, S.A.B. de C.V., a publicly held company, directly or indirectly owns all the stock of Mexichem Fluor, Inc.

Petitioners produce industrial chemicals. As relevant here, they manufacture products that are subject to regulation pursuant to Section

612 of the Clean Air Act, 42 U.S.C. § 7671k. Petitioners are therefore affected by Environmental Protection Agency requirements promulgated thereunder, including the final rule at issue in these consolidated petitions for review.

2. Rulings Under Review. The petitions for review challenge the Environmental Protection Agency's final rule titled "Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes Under the Significant New Alternatives Policy Program," which appears in the Federal Register at 80 Fed. Reg. 42,870 (July 20, 2015) and in the joint appendix at ___-___.

3. Related Cases. *Compsys, Inc. v. Environmental Protection Agency*, No. 15-1334 (D.C. Cir.), which was filed in this Court on September 18, 2015, involves a challenge to the same final rule. That case was initially consolidated with these two cases, but the Court subsequently ordered that the consolidation be terminated and that Compsys' challenge be held in abeyance pending further order of the Court. Petitioners are unaware of any other case that is related to the two cases that remain consolidated.

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GLOSSARY

CAA	Clean Air Act
CAP	Climate Action Plan
CFC	Chlorofluorocarbon
EPA	Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
SNAP	Significant New Alternatives Policy
VOC	Volatile Organic Compound

INTRODUCTION

In 1990 Congress added Title VI to the Clean Air Act ("CAA") to help fulfill the obligations of the United States under the Montreal Protocol on Substances That Deplete the Ozone Layer. The centerpiece of Title VI is a domestic phase-out of substances that deplete stratospheric ozone and thereby increase the risk of skin cancer. To supplement that phase-out, Section 612 of the CAA decrees that, to the extent practicable, ozone-depleting substances—which the statute classifies as "class I" or "class II" substances—"shall be replaced" by "substitutes" that "reduce overall risks to human health and the environment." 42 U.S.C. § 7671k(a).

In 1994 the Environmental Protection Agency ("EPA" or "the Agency") published a final rule for evaluating replacements for ozone-depleting chemicals pursuant to CAA § 612. The process for making such determinations is called the Significant New Alternatives Policy ("SNAP") program.

In creating the SNAP program, EPA recognized a "key issue": Is there a point at which chemicals "should no longer be classified as *** substitutes" for ozone-depleting substances? Protection of Stratospheric

Ozone, 58 Fed. Reg. 28,094, 28,099 (May 12, 1993). Drawing on the language in CAA § 612(a), the Agency emphatically answered "yes," such that a "second-generation substitute"—a replacement for a replacement—is not a SNAP substitute and is outside the SNAP program. For substitutes within the SNAP program, EPA established policies, procedures, and criteria for making acceptability determinations. These include comparing a SNAP substitute to other SNAP substitutes and the ozone-depleting substance being replaced. The Agency has continued to apply these criteria up to the present day.

The 1994 rule also contained EPA's first list of acceptable replacements for ozone-depleting substances. Over time, the list has expanded significantly as class I and class II substances were phased out and as manufacturers have developed new non-ozone-depleting chemicals. Among the substitutes listed as acceptable were various chemicals classified as hydrofluorocarbons ("HFCs"). Today HFCs primarily are used in refrigeration and air conditioning. To a lesser extent, they also are employed as specialty aerosol propellants and as blowing agents to make plastic foams. None depletes stratospheric ozone.

In 2013, however, President Obama promised to ban at least some HFCs. The Administration issued a "Climate Action Plan" describing emissions of HFCs as a climate-change problem and saying that EPA "will use its authority through the [SNAP] Program to encourage private sector investment in low-emissions technology by identifying and approving climate-friendly chemicals while prohibiting certain uses of the most harmful chemical alternatives." Executive Office of the President, The President's Climate Action Plan 10 (June 2013) ("Climate Action Plan") (JA___).

In July 2015, EPA "deliver[ed] on the President's Climate Action Plan and the administration's commitment to acting on climate," News Release, EPA Finalizes Rule to Reduce Climate-Damaging HFCs (July 2, 2015) (JA___), by promulgating a rule that changes the status of 38 individual HFCs or HFC blends from acceptable to unacceptable in 25 uses ("the Final Rule"). The Agency has justified the delistings, which effectively ban use of those chemicals in the relevant applications, based on the global warming potential ("GWP") of the previously approved HFCs.

EPA's HFC bans, the subject of these consolidated petitions for review, are unprecedented. In the prior 21 years of the program, the Agency had never delisted a SNAP substitute based on GWP comparisons and had never delisted a SNAP substitute that did not deplete ozone.

EPA obtained this extraordinary result fulfilling the President's vow by ignoring the express terms of CAA § 612 and its own regulations. The Agency compared the banned HFCs—substances that do not deplete ozone—with later-generation chemicals that (i) also do not deplete ozone, (ii) do not replace ozone-depleting substances, and (iii) are not SNAP substitutes. The statute and regulations preclude such comparisons, and EPA has never explained how either the statute or the regulations could be interpreted to allow them. Nor has the Agency explained, or even acknowledged, its prior view that banning non-ozone-depleting chemicals based on later-generation substances falls outside the SNAP program. Beyond that, the Agency has disregarded its own SNAP policies and regulatory criteria, ignored compelling evidence challenging its assumptions about the banned

HFCs, and failed to articulate any objective standard for deciding which chemicals are acceptable under SNAP and which are not.

In short, EPA has pounded the square peg of the President's Climate Action Plan into the round hole of CAA § 612 and the SNAP regulations. In so doing the Agency has produced a rarity—an air-emissions regulation where the significance of risk, amount of emissions, extent of controls, and actual effects on the atmosphere are irrelevant. But EPA did deliver on the President's promise.

In changing the status of the HFCs, EPA disregarded both CAA § 612 and basic principles of rational, non-arbitrary agency decision-making. The Agency's action is unlawful and the Final Rule must be vacated.

STATEMENT OF JURISDICTION

These are consolidated petitions for review of a final EPA rule titled "Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes Under the Significant New Alternatives Policy Program" and published at 80 Fed. Reg. 42,870 on July 20, 2015. EPA was authorized to conduct the rulemaking pursuant to 42 U.S.C. § 7671k. Because EPA's rule has nationwide applicability, this Court

has jurisdiction under 42 U.S.C. § 7607(b)(1). Mexichem Fluor, Inc. ("Mexichem") and Arkema Inc. ("Arkema") filed timely petitions for review on September 17, 2015.

STATEMENT OF ISSUES

1. Whether the Final Rule is contrary to law because EPA exceeded its authority under Section 612 of the CAA and the Agency's implementing regulations.

2. Whether the Final Rule is arbitrary and capricious because EPA reversed its prior position without explanation.

3. Whether the Final Rule is arbitrary and capricious because EPA failed to consider relevant factors under its regulations and policies.

4. Whether the Final Rule is arbitrary and capricious because EPA failed to articulate an objective standard for its actions.

STATUTES AND REGULATIONS

Pertinent statutes and regulations are set forth in a separately bound addendum.

STATEMENT OF THE CASE

A. The Montreal Protocol

In the mid-1970s, scientists discovered that certain man-made chemicals were contributing to the depletion of stratospheric ozone in the Earth's atmosphere. *See NRDC v. EPA*, 464 F.3d 1, 3 (D.C. Cir. 2006). A decade later, the United States and other nations entered into the Montreal Protocol on Substances That Deplete the Ozone Layer, Sept. 16, 1987, S. TREATY DOC. NO. 100-10, 1522 U.N.T.S. 29 ("Montreal Protocol" or "Protocol").

As amended, the Protocol required production and consumption of ozone-depleting chlorofluorocarbons ("CFCs") to end in developed countries by 1996. Montreal Protocol art. 2A. The parties to the Protocol eventually also agreed to phase out a related class of ozone-depleting compounds, hydrochlorofluorocarbons ("HCFCs"), which could be used in place of CFCs. *Id.* art. 2F. Intermediate step-downs were set in developed countries for 2004, 2010, 2015, and 2020, with a final phase-out date of 2030. *Id.* Congress authorized EPA to accelerate this schedule for the United States, 42 U.S.C. § 7671e, and the Agency has done so, *see, e.g.*, Protection of Stratospheric Ozone, 58 Fed. Reg. 65,018 (Dec. 10, 1993).

The Montreal Protocol was "the first treaty in the history of the United Nations to achieve universal ratification" and is "considered by many the most successful environmental global action." http://www.epa.gov/ozone-layer-protection/international-actions-montreal-protocol-substances-deplete-ozone-layer. It has been so successful that the United States, along with other countries, has proposed amending the Protocol to cover HFCs. http://www.state.gov/r/pa/prs/ps/2015/04/240730.htm.

B. Title VI Of The Clean Air Act

The United States meets its existing Montreal Protocol obligations through Title VI of the Clean Air Act, titled "Stratospheric Ozone Protection," which was enacted as part of the Clean Air Act Amendments of 1990, Pub. L. No. 101-549, tit. VI, 104 Stat. 2399 (codified at 42 U.S.C. §§ 7671-7671q). As its name suggests, the focus throughout Title VI is on ozone-depleting substances, which Congress divided, based on their capacity for depleting ozone, into "class I" and "class II" substances. 42 U.S.C. § 7671a. Class I substances, which have greater ozone-depletion potential, consist mainly of CFCs; class II substances are HCFCs. *Id.*

Besides setting out the timetables for eliminating ozone-depleting substances, 42 U.S.C. §§ 7671c-7671d, Title VI directs EPA to create market-based cap-and-trade systems for controlling them, *id.* § 7671f; *see Arkema Inc. v. EPA*, 618 F.3d 1, 3-4 (D.C. Cir. 2010). Title VI also contains a variety of supporting provisions, which cover reporting, recycling and disposal, and substitutes for ozone-depleting substances, among other things. *See, e.g., id.* §§ 7671b, 7671g, 7671k.

Substitutes, the subject of this case, are addressed in Section 612 of the CAA, 42 U.S.C. § 7671k. That section starts with a statement of policy in subsection (a): "To the maximum extent practicable, class I and class II substances shall be replaced by chemicals, product substitutes, or alternative manufacturing processes that reduce overall risks to human health and the environment." *Id.* § 7671k(a). Subsection (b) then directs EPA to develop recommendations and initiatives for class I and class II substances. *Id.* § 7671k(b). Subsection (c) requires the Agency to promulgate rules making it "unlawful to replace any class I or class II substance with any substitute substance which the Administrator determines may present adverse effects to human health or the environment," where EPA "has identified an alternative to such

replacement" that "reduces the overall risk to human health and the environment" and "is currently or potentially available." *Id.* § 7671k(c). The same subsection requires the Agency to publish a list of prohibited and safe substances. Under subsection (d), persons may petition EPA to add or remove substances from the list. *Id.* § 7671k(d). Finally, subsection (e) covers reporting obligations of producers of substitutes for class I substances. *Id.* § 7671k(e).

C. EPA's Regulations Implementing SNAP

1. To implement Section 612(c) of the CAA, EPA began with an advance notice of proposed rulemaking, Protection of Stratospheric Ozone, 57 Fed. Reg. 1984 (Jan. 16, 1992), in which the Agency interpreted Section 612(a) as providing the definition of a substitute. "Based on the language included in the statement of policy in section 612(a)," EPA concluded that a substitute is any chemical, product, or alternative manufacturing process "that serves as a replacement for a Class I or Class II substance." *Id.* at 1986.

The Agency followed up with a proposed rule in 1993. 58 Fed. Reg. 28,094. The preamble identified a "key issue"—"whether there exists a point at which an alternative should no longer be classified as a Class I

or Class II substitute as defined by section 612." *Id.* at 28,099. EPA answered by proposing that "second-generation replacements, if they are replacing non-ozone depleting first-generation alternatives, are exempt" from regulation. *Id.*

In the 1994 final rule setting the parameters for the SNAP program, EPA continued to recognize the second-generation issue as "key." Protection of Stratospheric Ozone, 59 Fed. Reg. 13,044, 13,052 (Mar. 18, 1994). Particularly apprehensive about expansion of the SNAP program "as new concerns develop," commenters "ask[ed] that EPA clarify that SNAP should only apply to substitutes for class I or class II compounds." *Id.* at 13,049. EPA "agree[d] with these comments" and "clarified in th[e] final rule that SNAP addresses only those substitutes or alternatives actually replacing the class I and II compounds listed under section 602 of the CAA." *Id.* at 13,049-13,050.

The Agency then provided an example of how this would work:

> [I]f a hydrofluorocarbon (HFC) is introduced as a first-generation refrigerant substitute for either a class I (e.g., CFC-12) or class II chemical (e.g., HCFC-22), it is subject to review and listing under section 612. Future substitutions to replace the HFC would then be exempt from reporting under section 612 because the first-generation alternative did not deplete stratospheric ozone.

59 Fed. Reg. at 13,052. The "key" is to determine what the substance "is designed to replace." *Id.* For second-generation substances, EPA explained, "[o]ther regulatory programs (e.g., other sections of the CAA, or section 6 of [the Toxic Substances Control Act]) exist to ensure protection of human health and the environment." *Id.*

Consistent with this view, the SNAP regulations define a "substitute or alternative" as a substance "*intended for use as a replacement for a class I or II compound.*" 40 C.F.R. § 82.172 (emphasis added).

2. Aside from confirming that second-generation chemicals are not SNAP "substitutes," the preamble to the 1994 rule set out a number of "Guiding Principles" for SNAP determinations derived from CAA § 612. 59 Fed. Reg. at 13,046. Three are of particular relevance here. EPA is to:

- "Evaluate Substitutes Within a Comparative Risk Framework";
- "Not Require That Substitutes Be Risk-Free To Be Found Acceptable"; and

- "Restrict Only Those Substitutes That Are Significantly Worse."

Id.

Moving from the general to the specific, the 1994 rule set out the information to be submitted for EPA's evaluation of any SNAP substitute. This includes:

- "Global warming impacts";
- "Environmental release data"; and
- "Cost of substitute."

59 Fed. Reg. at 13,149 (codified at 40 C.F.R. § 82.178(a)).

The 1994 rule also established the "[c]riteria" EPA is to use in deciding whether a SNAP substitute is acceptable or unacceptable. These include:

- "Atmospheric effects and related health and environmental impacts";
- "Flammability"; and
- "Cost and availability of the substitute."

59 Fed. Reg. at 13,150 (codified at 40 C.F.R. § 82.180(a)(7)). Based on these criteria, the Agency may find that a substitute is acceptable

within a sector, acceptable when certain conditions of use are met, acceptable for a narrow category of uses within a sector, or unacceptable. 40 C.F.R. § 82.180(b).

Finally, the 1994 rule contained the first list of acceptable substitutes. Among these were HFCs in a variety of sectors, including HFC-134a in retail food refrigeration, vending machines, motor-vehicle air conditioning, and foam blowing.

D. Subsequent Agency Actions

Since 1994, EPA has issued 20 follow-on SNAP rules and 30 notices of acceptability. *See* Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes Under the Significant New Alternative Policy Program, 80 Fed. Reg. 42,870, 42,878 (July 20, 2015) (JA___). The primary effect has been to increase the number of chemicals on the "acceptable" list, either through rulemakings when use restrictions have been needed or through notices of acceptability when a candidate is approved without restriction. *Id.* at 42,876 (JA___). EPA also used SNAP rulemakings to change the status of a substitute from "acceptable" to "unacceptable." But until the 2015 Final Rule, such "delistings" had happened only three times. In each case, as explained

below, the substitute itself depleted ozone and the reason for the change in status was something other than GWP.

In 1999, the Agency determined that the blend MT-31, which had been considered "low in toxicity," actually posed a health risk to workers and so was no longer suitable as a replacement in the refrigeration and air-conditioning sector. Protection of Stratospheric Ozone: Listing MT-31 as an Unacceptable Refrigerant Under EPA's Significant New Alternatives Policy (SNAP) Program, 64 Fed. Reg. 3861, 3863 (Jan. 26, 1999). MT-31 contained an ozone-depleting class II substance. Protection of Stratospheric Ozone, 62 Fed. Reg. 30,275, 30,277 (June 3, 1997). In 2002, EPA changed the status of a class I ozone-depleting fire suppressant that had been found after approval to be a fetal toxin. Protection of Stratospheric Ozone: Removal of Restrictions on Certain Fire Suppression Substitutes for Ozone-Depleting Substances; and Listing of Substitutes, 67 Fed. Reg. 4185, 4194 (Jan. 29, 2002). Finally, in 2007, the Agency changed the status of two other class II substances when non-ozone-depleting substances became available. Protection of Stratospheric Ozone: Listing of Ozone

Depleting Substitutes in Foam Blowing, 74 Fed. Reg. 14,432 (Mar. 28, 2007).

Thus, in the SNAP program's first 21 years, EPA never had changed the status of a non-ozone-depleting substitute and never had used GWP to justify a change in status. Indeed, the Agency had affirmatively *rejected* a request to change the status of a non-ozone-depleting substitute. In 1995, OZ Technology petitioned EPA (i) to find a hydrocarbon refrigerant, which was "non-ozone-depleting" and had "a relatively low global warming potential," acceptable for use in automobile air-conditioning systems and (ii) to change the status of HFC-134a in that use from acceptable to unacceptable. EPA, Response to OZ Technology's Petition, Attachment at 1 (Aug. 30, 1996) (JA___). The Agency denied the petition. In so doing, it reiterated that, "under the March 18, 1994 SNAP rule, EPA does not review substitutes for non-ozone-depleting refrigerants like HFC-134a" and that "the SNAP rule does not regulate the legitimate substitution of [a second-generation substitute] for first generation non-ozone-depleting substances." *Id.*

E. The President's Climate Action Plan

In June 2013, President Obama released his Climate Action Plan ("CAP"), "a blueprint for steady, responsible national and international action to slow the effects of climate change." Climate Action Plan 5 (JA___). Designed to fulfill the President's "pledge that by 2020, America would reduce its greenhouse gas emissions in the range of 17 percent below 2005 levels," the CAP outlined a variety of steps "the Administration *will take,*" including "[c]urbing [e]missions of [h]ydrofluorocarbons." *Id.* at 4, 6, 10 (emphasis added) (JA___, ___, ___). "To reduce emissions of HFCs," the CAP vowed "domestic actions." *Id.* at 10 (JA___).

F. EPA's Proposed Rule

EPA dutifully issued a notice of proposed rulemaking ("the Proposed Rule") that "primarily recognize[d]" the "call in the President's Climate Action Plan" to "'reduce emissions of HFCs,'" thereby "supporting efforts to secure a global phasedown." Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes Under the Significant New Alternatives Policy Program, 79 Fed. Reg. 46,126, 46,134 (Aug. 6, 2014) (JA___). Accordingly, the Agency proposed to "de-list" HFCs having "high GWPs as compared with other available

or potentially available substitutes in those end-uses." *Id.* at 46,135 (JA___).[1]

EPA intended to make those determinations, not for HFCs as a class, but for each "specific HFC or HFC blend and the particular end-use." 79 Fed. Reg. at 46,127 (JA___). The Proposed Rule covered four industrial sectors: aerosols; air conditioning for new cars; retail food refrigeration (which is divided into subcategories by type of equipment); and foam blowing (which has several subcategories based on the particular plastic foam being made, its form, and its use). *Id.* at 46,127-46,128, 46,150 (JA___-___, ___).

In response, petitioners submitted detailed comments identifying flaws in EPA's approach. For instance, Mexichem reminded the Agency that Section 612 of the CAA does not confer authority to regulate non-ozone-depleting substances on the basis of the GWP of later-approved

[1] A greenhouse gas ("GHG") is any gas that absorbs infrared radiation (which is perceived as heat) in the atmosphere. GWP is a measure of the total energy an amount of gas absorbs compared with that absorbed by the same amount of carbon dioxide. To compare emissions, a quantity of a particular GHG is multiplied by its GWP, which gives the quantity in carbon dioxide equivalents. *See* www3.epa.gov/climatechange/glossary.html. Carbon dioxide and HFCs are GHGs. By way of example, EPA currently assigns HFC-134a a GWP of 1430. 79 Fed. Reg. at 46,140 (JA___).

non-ozone-depleting chemicals. Comments of Mexichem Fluor, Inc., EPA-HQ-OAR-2014-0198-0101 at 1-3 (Oct. 20, 2014) (JA___-___). Even assuming that it did, Mexichem explained, EPA failed to show that the risks of the second-generation substitutes were lower than those of the banned HFCs, since the Agency focused solely on GWP while ignoring the regulatory decision-making criteria. *Id.* at 3-7 (JA___-___). Mexichem argued that EPA's climate analysis was defective in several respects, including especially that it ignored energy efficiency. *Id.* at 4-5 (JA___-___).

Arkema, too, objected to the proposal as contrary to CAA § 612 and the SNAP regulations, as well as EPA's prior positions. Comments of Arkema Inc., EPA-HQ-OAR-2014-0198-0131 at 4-8 (Oct. 20, 2014) ("Arkema Comments") (JA___-___). Arkema also showed how the Proposed Rule was inconsistent with the SNAP program's "Guiding Principles," in that the Agency was banning substances based on insignificant risks, did not assess actual atmospheric effects of individual substances in particular end uses, and did not account for energy efficiency, existing controls, available use restrictions, or costs. *Id.* at 9-51 (JA___-___). On top of all that, Arkema explained, EPA had

failed to provide a meaningful standard for acceptability. *Id.* at 40-44 (JA___-___).

G. EPA's Final Rule

1. The comments had no effect. The Final Rule reclassified 38 individual HFCs or HFC blends, including HFC-134a, as unacceptable for 25 uses. 80 Fed. Reg. 42,870; *see* EPA, Fact Sheet (July 20, 2015), http://www.epa.gov/sites/production/files/2015-08/documents/snap_regulatory_factsheet_july20_2015.pdf (JA___-___).[2]

In each of those uses, class I and class II substances have already been replaced. In the motor-vehicle air-conditioning sector, for example, "CFC-12 was the refrigerant historically used"; however, "[b]y the mid-1990s, use of CFC-12 in manufacturing new [cars] ceased in the United States, and manufacturers of [cars] uniformly decided to adopt HFC-134a." 80 Fed. Reg. at 42,888 (JA___). "More recently, additional alternatives for [motor-vehicle air conditioning] have been listed as acceptable." *Id.* It is those later-generation chemicals that serve as the

[2] The Final Rule also changed the status of a few ozone-depleting substances, several of which are not in use, EPA, Response to Comments 57 (July 2015) (JA___), and several of which previously had been banned by other EPA regulations, 80 Fed. Reg. at 42,934 (JA___). Those determinations are not at issue here.

Final Rule's points of comparison for HFC-134a in car air conditioners. *Id.*

Similarly, the commercial-refrigeration industry historically relied on class I and class II substances but "transitioned away from [ozone-depleting substances] *** primarily to HFCs." EPA, Market Characterization of the U.S. Aerosols Industry, U.S. Motor Vehicle Air Conditioning Industry, U.S. Commercial Refrigeration Industry, and U.S. Foams Industry 26 (July 2015) (JA___). Indeed, the Final Rule's comparisons of banned HFCs in the refrigeration sector relied in part on the properties of isobutane, which, according to its manufacturer, was "not replacing an [ozone-depleting substance]" but was "being proposed for use *** as a substitute for [HFC-]134a (another non-ozone depleting substance)." General Electric, SNAP Program Submission to EPA, EPA-HQ-OAR-2014-0198-0003(18) at 5 (Oct. 22, 2008) (JA___). As for aerosols and foam, CAA § 610(d) banned most uses of ozone-depleting substances before 1994. *See* 42 U.S.C. § 7671i(d).

In fact, EPA did not compare any of the banned HFCs or their replacements to a class I or class II substance. Despite CAA § 612(a)

and the Agency's express policy to the contrary, EPA compared the banned HFCs only to chemicals intended to replace HFCs.

2. In reclassifying the HFCs as unacceptable, EPA reaffirmed its "Guiding Principles" from 1994 and confirmed that it was continuing to apply the criteria from the 1994 rule. 80 Fed. Reg. at 42,876-42,878, 42,940 (JA___-___, ___). As to its legal authority, the Agency stated that it would neither explore the "first-generation" concept nor examine whether it was using substances that are not SNAP substitutes as the basis of comparisons. *Id.* at 42,936-42,937 (JA___-___).[3]

As to the risk posed by each banned HFC, the Agency relied on GWP. 80 Fed. Reg. at 42,871 (JA___). The reason, "as noted in the preamble to the [Proposed Rule]," was that EPA "issued this proposal in response to the CAP." *Id.* at 42,942 (JA___). The Agency surveyed all the SNAP sectors and "identified a subset of substitutes that have a high GWP relative to other listed alternatives." *Id.*

[3] The Agency explained this decision, in part, by asserting that it can compare SNAP substitutes to "alternatives" as well as other substitutes. 80 Fed. Reg. at 42,937 n.99 (JA___). Besides ignoring that CAA § 612(a) requires any alternative to replace an ozone-depleting substance, the Agency apparently forgot that it defines "substitute or alternative" as meaning the same thing. 40 C.F.R. § 82.172.

As to the risks posed by the substances serving as the Agency's basis of comparison, EPA concluded that they were controlled. *Id.* Existing controls for the banned HFCs, in contrast, were found to be unable to control all the risks. Response to Comments 167 (JA___). And additional controls in the form of use restrictions were ignored, assumed not to work, or determined to be outside the scope of the proceeding. 80 Fed. Reg. at 42,899 (JA___); Response to Comments 166 (JA___).

Although the Agency acknowledged that the banned HFCs could be more energy-efficient than other non-ozone depleters in particular applications, it did not analyze the resulting atmospheric effects. Supposedly, EPA "does not have a practice in the SNAP program of including indirect climate impacts or energy efficiency in the overall risks analysis." 80 Fed. Reg. at 42,946 (JA___). Transition costs likewise did not need to be analyzed, EPA said, because the Agency's usual practice was to consider only the cost of the substance under review. *E.g.*, Response to Comments 29-30 (JA___-____). As to an overall standard, EPA rejected a quantitative approach because it would not afford the Agency "sufficient flexibility." 80 Fed. Reg. at 42,940 (JA___).

SUMMARY OF ARGUMENT

The Final Rule must be vacated because it is contrary to law and violates basic principles of rational, non-arbitrary administrative decision-making. This is true for four independent reasons.

First, EPA exceeded its statutory and regulatory authority. It used Section 612 of the CAA to ban particular HFCs, which do not deplete ozone, based on comparisons with later-generation substances that also do not deplete ozone. Section 612 precludes using such comparisons to ban a non-ozone-depleting substance. As the Agency previously has recognized, in its implementing regulations and elsewhere, later-generation chemicals are not SNAP substitutes and so are not a valid basis for comparison. To the extent that the statute is unclear on this point, the Agency's new interpretation of it is not a permissible one.

Second, even if EPA has the authority to ban HFCs, the Agency did not explain—or even acknowledge—its reversal of its previous position that an HFC could not be compared with a later-generation chemical under SNAP. When an agency reverses a prior position, it must at least acknowledge the change and explain its deviation. EPA's failure to do so is arbitrary and capricious.

Third, even if the Agency has the authority to ban HFCs and adequately explained its change of position on that question, it did not follow its own regulations and policies. Throughout the history of the program, EPA has maintained that it uses SNAP to address only "significant risk" and that a replacement for an ozone-depleting substance need not be risk-free to be acceptable. While the Agency listed the GWPs of the banned HFCs and compared them with the GWPs of other chemicals, it nowhere explained why the differences posed significant risks. Neither did EPA make the required regulatory determinations that are necessary to support a finding that a SNAP chemical "reduces the overall risk to human health and the environment" as compared with each of the banned HFCs. Efficiency, direct atmospheric effects, levels of emissions, and controls were all ignored. Finally, the Agency refused to consider transition and efficiency costs despite the regulations' express requirement that they be taken into account. EPA's failure to consider the relevant factors in its own regulations, and to explain rationally the connection between the facts found and the choices made, is arbitrary and capricious.

Fourth, even if EPA has the authority to ban HFCs, adequately explained its change in position, and followed its regulations and policies, the Agency has not provided an objective standard for its HFC determinations. It has merely classified differences in GWP as "lower," "significantly lower," "higher," or "significantly higher" and then used such classification to ban individual HFCs, while finding other chemicals acceptable because their GWPs are "comparable." The result is standardless decision-making such that EPA knows acceptability when it wants to see it. An agency must supply a metric for its determinations, not merely an "unbounded relational definition." *Tripoli Rocketry Ass'n v. BATFE*, 437 F.3d 75, 81 (D.C. Cir. 2006). EPA's failure to provide a standard is arbitrary and capricious.

STANDING

As explained in more detail in the declarations of John Pacillo and Matthew Ritter, which appear in an addendum bound with this brief, Mexichem and Arkema have standing to challenge the Final Rule because they are "'object[s] of the action *** at issue.'" *Sierra Club v. EPA*, 292 F.3d 895, 900 (D.C. Cir. 2002) (quoting *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992)). Both Mexichem and Arkema

produce and sell chemicals that EPA regulates pursuant to the SNAP program, including HFC-134a and other HFCs banned by the Final Rule. The Final Rule thus has serious economic consequences for both companies. Accordingly, Mexichem and Arkema are aggrieved by the Final Rule and their injuries can be redressed by a decision vacating it.

STANDARDS OF REVIEW

Under the CAA, a reviewing court "may reverse any [EPA] action" that is "in excess of statutory jurisdiction, authority, or limitations, or short of statutory right," or that is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9)(A), (C).

Under *Chevron U.S.A., Inc. v. NRDC*, 467 U.S. 837 (1984), an agency's interpretation of a statute is subject to *de novo* review if the statute is unambiguous and deferential review if it is not. The "now-canonical formulation" of that doctrine is this:

> "When a court reviews an agency's construction of the statute which it administers, it is confronted with two questions." First, applying the ordinary tools of statutory construction, the court must determine "whether Congress has directly spoken to the precise question at issue. If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." But "if the

> statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a permissible construction of the statute."

City of Arlington v. FCC, 133 S. Ct. 1863, 1868 (2013) (quoting *Chevron*, 467 U.S. at 842-43; citations omitted).

Agency action can be arbitrary and capricious for a variety of reasons, including, as relevant here, that

- the action reflects a change in the agency's position and the agency has offered no reasoned explanation for the change, *e.g.*, *Shieldalloy Metallurgical Corp. v. NRC*, 707 F.3d 371, 381-82 (D.C. Cir. 2013);
- the agency has failed to follow its own regulations or policies, *e.g.*, *Nat'l Envtl. Dev. Ass'n Clean Air Project v. EPA*, 752 F.3d 999, 1009 (D.C. Cir. 2014) ("*NEDACAP*"), has treated similar cases differently, *e.g.*, *Kaiser Found. Hosps. v. Sebelius*, 708 F.3d 226, 233 (D.C. Cir. 2013), or has entirely failed to consider an important aspect of the problem, *e.g.*, *OZ Tech. Inc. v. EPA*, 129 F.3d 631, 633 (D.C. Cir. 1997); and

- the agency has provided no discernible standard for the exercise of its discretion, *e.g.*, *USPS v. Postal Regulatory Comm'n*, 785 F.3d 740, 753 (D.C. Cir. 2015).

ARGUMENT

I. EPA'S BANS ON HFCS ARE CONTRARY TO LAW BECAUSE THE AGENCY EXCEEDED ITS AUTHORITY

EPA's HFC bans in the Final Rule exceeded both the Agency's statutory authority and its regulatory authority.

A. EPA Exceeded Its Statutory Authority

EPA relied upon CAA § 612 to replace certain HFCs, which are neither class I nor class II substances and do not deplete stratospheric ozone. The Agency's action fails under both steps of *Chevron*. Section 612 unambiguously covers only replacements of ozone-depleting substances and does not authorize "replacements of replacements." To the extent that Section 612 *is* ambiguous, moreover, EPA's interpretation of it is impermissible.

1. The Clean Air Act unambiguously precludes EPA's HFC bans

a. Section 612 of the CAA mandates the replacement of ozone-depleting substances (like CFCs and HCFCs); it does not authorize the replacement of non-ozone-depleting substitutes (like HFCs). Congress'

statement of policy in Section 612(a) is that "class I and class II substances shall be replaced" by safe alternatives. 42 U.S.C. § 7671k(a). Likewise, Congress' directive to EPA in Section 612(c) is to promulgate rules making it unlawful "to replace any class I or class II substance" with prohibited substitutes. *Id.* § 7671k(c).

The ordinary meaning of "replace" is "to take the place of: serve as a substitute for or successor of." Webster's Third New International Dictionary ("Webster's") 1925 (1986). EPA concedes as much in the Final Rule. *See* 80 Fed. Reg. at 42,936 (JA__) ("Dictionary definitions of 'replace' include the following: 'to be used instead of[,]' 'to take the place of,' and 'to provide a substitute or equivalent for.'" (footnotes omitted)). When an ozone-depleting substance is replaced by one that does not deplete ozone, and the non-ozone-depleting substance is then itself replaced, no one would say that the original, ozone-depleting substance had been replaced again; anyone using ordinary English would say that it was the *replacement* that had been replaced.

Jefferson replaced Adams as president, not Washington. And if one "replac[ed] buildings of brick with buildings of stone," 13 Oxford English Dictionary 642 (2d ed. 1989), and then in turn replaced the

buildings of stone with buildings of steel, the buildings of steel could not be said to have "replaced" the buildings of brick. So too here, a replacement of a non-ozone-depleting substance is not the "successor of," Webster's 1925, the ozone-depleting substance that the first non-ozone-depleting substance replaced.

b. The context and structure of Title VI of the CAA confirm the limited scope of Section 612. Title VI begins by defining terms in Section 601, and Section 602 then lists the ozone-depleting class I and class II substances subject to regulation. 42 U.S.C. §§ 7671-7671a. Section 603 directs EPA to develop monitoring and reporting for class I and class II substances, while sections 604 through 607 mandate the phase-out of those substances through the creation of market-based trading programs. *Id.* §§ 7671b-7671f. Other sections of Title VI address the use and disposal of class I and II substances, *id.* § 7671g, prohibitions on non-essential uses of those substances, *id.* § 7671i, and labeling for them, *id.* § 7671j, among other things. At each step, Title VI focuses narrowly and unmistakably on ozone-depleting substances.

Nothing in Title VI suggests that Congress intended EPA to create an ongoing general regulatory regime to approve and disapprove

chemicals based on GWP (or other considerations), divorced from any connection to stratospheric ozone. On the contrary, the structure of Title VI confirms that Congress' purpose was to ensure that producers and users of ozone-depleting substances designated for elimination did not immediately transition to more harmful substances, thereby preventing a jump from the frying pan into the fire. EPA itself once recognized this. *See* 59 Fed. Reg. at 13,048 ("[T]he Agency believes that Congressional intent under section 612 is to reduce the overall risk from the continued use of ozone depleting substances."). But EPA has now gone further than Title VI contemplates by creating a freestanding program to regulate substances, like HFCs, that do not deplete stratospheric ozone.

Congress knew how to give EPA such authority if it had wanted to. Congress granted the Agency ongoing CAA authority, for example, over (i) particular products like motor vehicles, motor-vehicle engines, and fuels (in CAA §§ 202 and 211, 42 U.S.C. §§ 7521, 7545); (ii) particular chemicals like air toxics (in CAA § 112, 42 U.S.C. § 7412); and (iii) particular industries (in CAA § 111, 42 U.S.C. § 7411). Even in Title VI, Congress directed EPA to issue regulations specifically

governing servicing of motor-vehicle air conditioners and refrigerants. *Id.* § 7671h. "Congress knows to speak in plain terms when it wishes to circumscribe, and in capacious terms when it wishes to enlarge, agency discretion." *City of Arlington*, 133 S. Ct. at 1868. Section 612 is circumscribed, not capacious.

c. The CAA's legislative history also confirms that Section 612 does not create an ongoing regulatory program for non-ozone-depleting substances. The Senate passed a bill that would have done just that by establishing a "safe alternatives policy" directing the replacement of *all* substances covered by the title governing "stratospheric ozone and global climate protection." S. 1630, 101st Cong. § 514(a) (1990). The main House bill, in contrast, originally did not address stratospheric ozone or safe substitutes. *See* H.R. 3030, 101st Cong. (1989). By amendment, the House added stratospheric-ozone provisions that would have directed EPA to promulgate rules "applicable to the replacement of class I and II ozone-depleting substances." S. 1630, 101st Cong. § 156 (1990) (as passed by House May 23, 1990).

The House and Senate conferees did not adopt either of the two bills in total but drew provisions from each. In the case of what is now

Section 612, Congress followed the (narrower) House approach of replacing only ozone-depleting substances instead of the (broader) Senate approach of replacing every substance covered by the title. EPA's Final Rule treats Section 612 as if Congress had adopted the Senate's rejected language.

d. One final point bears mention. If EPA had the authority under CAA § 612 to order the replacement of a replacement of an ozone-depleting substance, on the theory that in doing so it is ordering the replacement of the ozone-depleting substance itself, there would be no principled reason why it could not also order the replacement of the replacement of the replacement, and so on *ad infinitum*. By the logic of this interpretation, for example, Section 612 would give EPA the authority 100 years from now to direct the replacement of a 24th-generation non-ozone-depleting substance with a 25th-generation substitute—and to do so for businesses and products that never used the original ozone-depleting substance. This astonishingly expansive understanding of Section 612 is so far removed from the comparatively modest purpose of the provision—to ensure that ozone-depleting substances are replaced with safe alternatives as they are phased out—

that Congress could not possibly have intended it. If non-ozone-depleting substances are to be regulated by EPA, that must be done, as the Agency itself recognized at the SNAP program's inception, through "[o]ther regulatory programs (e.g., other sections of the CAA, or section 6 of [the Toxic Substances Control Act])." 59 Fed. Reg. at 13,052.

2. If the Clean Air Act is ambiguous, EPA's interpretation of it is unreasonable

Even if the CAA does not unambiguously preclude EPA's HFC bans, the Agency acted unreasonably in the Final Rule by interpreting the statute to permit them. The interpretive question in this case is whether Section 612 grants EPA authority to replace non-ozone-depleting substances. As far as that question is concerned, the Final Rule acknowledges that "the Agency is revising the listing status of substitutes that are direct replacements for [ozone-depleting substances]." 80 Fed. Reg. at 42,936 (JA___). The Final Rule then goes on to say that EPA (i) is "not exploring the full scope of the 'first generation' concept in this action," *id.*; (ii) is "not addressing the extent of EPA's authority to revise the listings of alternatives that are arguably indirect replacements for [ozone-depleting substances], sometimes termed 'second generation alternatives'," *id.*; and (iii) is "not

re-examining in this rulemaking whether the substances used for comparison purposes *** qualify as substitutes," *id.* at 42,937 (JA___).

There are two possible ways to read these statements. One is that EPA is simply refusing to grapple with whether Section 612 authorizes it to replace first-generation substitutes—despite having done precisely that in the Final Rule. If this is what the Agency means, then it has failed to interpret Section 612 *at all* and the Final Rule fails at step two of *Chevron* for that reason. *See Miller v. Clinton*, 687 F.3d 1332, 1342 (D.C. Cir. 2012); *TNA Merchant Projects, Inc. v. FERC*, 616 F.3d 588, 593 (D.C. Cir. 2010); *Se. Ala. Med. Ctr. v. Sebelius*, 572 F.3d 912, 920 (D.C. Cir. 2009).

The other way to read EPA's statements is that the Agency believes that Section 612 authorizes it to replace a non-ozone-depleting substance, but only once—that is, that EPA can replace a first-generation substitute with a second-generation substitute but cannot require any substitutions after that. If that is the Agency's interpretation, it is manifestly irrational. Section 612 authorizes the replacement of ozone-depleting substances with non-ozone-depleting substances. There is no basis in the statute—or for that matter in logic

or common sense—to say that Section 612 authorizes EPA to go beyond the replacement of ozone-depleting substances but to draw the line at the replacement of first-generation with second-generation substitutes. If a third-generation substitute is not a replacement for an ozone-depleting substance, then neither is a second-generation substitute. This kind of line-drawing is entirely arbitrary and therefore an impermissible reading of the statute. *See, e.g., Northpoint Tech., Ltd. v. FCC*, 412 F.3d 145, 151 (D.C. Cir. 2005).

Finally, although this view is not reflected in EPA's statements, it is conceivable that the Agency is interpreting Section 612 to authorize the replacement of non-ozone-depleting substances forever, across generations of products and manufacturing methods, with no limitation whatsoever. While this interpretation may not suffer from the flaw of arbitrariness, it does suffer from the flaw of boundlessness. It "so completely diverges from any realistic meaning" of Title VI of the CAA—provisions whose narrow purpose is to regulate ozone-depleting substances—that it likewise "cannot survive scrutiny under *Chevron* Step Two." *NRDC v. Daley*, 209 F.3d 747, 753 (D.C. Cir. 2000).

The only reasonable interpretation of the statute, in light of its text, context, structure, history, and purpose, is that Section 612 authorizes the replacement of class I and class II substances, and those substances alone. As we have explained, this interpretation is not only reasonable but correct.

B. EPA Exceeded Its Regulatory Authority

The SNAP regulations likewise forbid EPA from banning non-ozone-depleting first-generation substitutes for ozone-depleting compounds based on comparisons with later-generation chemicals. The Final Rule is therefore inconsistent, not only with Title VI of the CAA, but with EPA's own regulations.

"The purpose of these regulations" is to "implement" Section 612 of the CAA "regarding the safe alternatives policy on the acceptability of *substitutes for ozone-depleting compounds*." 40 C.F.R. § 82.170(a) (emphasis added). "The objectives of this program" are "to identify *substitutes for ozone-depleting compounds*," "to evaluate the acceptability of those substitutes," and "to promote the use of those substitutes," *"relative to the class I and class II compounds being replaced, as well as to other substitutes for the same end-use." Id.*

(emphasis added). The Agency expressly defines the term "substitute"—as well as the term "alternative"—as "any chemical, product substitute, or alternative manufacturing process, whether existing or new, *intended for use as a replacement for a class I or II compound*." *Id.* § 82.172 (emphasis added).

The chemicals that served as the basis for comparison in the 2015 Final Rule are intended—by EPA and their producers—as replacements for HFCs. Hence, they are not SNAP "substitutes" under EPA's regulations and cannot be the basis of a SNAP delisting.

Up until the President issued the CAP, this is how EPA had interpreted CAA § 612 and its regulations. The Agency adopted that approach at the time of its 1992 advance notice of proposed rulemaking and carried it forward through the notice of proposed rulemaking into the 1994 final rule. In that rulemaking, EPA confirmed that, while use of an HFC "as a first-generation refrigerant substitute" for a class I or class II compound is subject to SNAP, "[f]uture substitutions to replace the HFC would then be exempt," because "the first-generation alternative did not deplete stratospheric ozone." 59 Fed. Reg. at 13,052; *accord id.* at 13,049-13,050. The 2015 Final Rule does the opposite: it

bans HFCs in particular applications based on comparisons with later-generation chemicals.

After promulgating the 1994 rule, EPA continued to take the position that it could not ban HFCs based on comparisons with later-generation substitutes. In 1996, after OZ Technology petitioned the Agency to find a "non-ozone-depleting" hydrocarbon with "a relatively low global warming potential" acceptable for use in automobile air-conditioning systems and to change the status of HFC-134a in that use from acceptable to unacceptable, EPA denied the petition. Response to OZ Technology's Petition, Attachment at 1 (JA___). The Agency explained that, "under the March 18, 1994 SNAP rule, EPA does not review substitutes for non-ozone-depleting refrigerants like HFC-134a" and that "the SNAP rule does not regulate the legitimate substitution of [a second-generation substitute] for first-generation non-ozone-depleting substances." *Id.* With no change to the regulatory framework since 1996, the Agency has come to the opposite conclusion in its 2015 Final Rule.

II. EPA'S BANS ON HFCS ARE ARBITRARY AND CAPRICIOUS BECAUSE THE AGENCY CHANGED ITS POSITION WITHOUT EXPLANATION

Even if EPA does have authority to replace non-ozone-depleting substances under CAA § 612 and its implementing regulations, its decision to do so in the Final Rule is arbitrary and capricious. The Agency had always taken the position that it would *not* order the replacement of non-ozone-depleting substances under the SNAP program, and it reversed that position in the Final Rule without any explanation for its reversal, much less a reasoned one.

Although an agency is free to change its policies and statutory interpretations, it must first "supply a reasoned analysis indicating that prior policies and standards are being deliberately changed, not casually ignored." *Greater Boston Television Corp. v. FCC*, 444 F.2d 841, 852 (D.C. Cir. 1970). Absent such scrutiny by the agency, "abrupt shifts in policy *** constitute 'danger signals' that the [agency] may be acting inconsistently with its statutory mandate" and amount to arbitrary and capricious rulemaking. *Office of Commc'n of United Church of Christ v. FCC*, 707 F.2d 1413, 1425 (D.C. Cir. 1983).

To satisfy the "reasoned analysis" standard, an agency first must "display awareness that it *is* changing position." *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009). "An agency may not, for example, depart from a prior policy *sub silentio* or simply disregard rules that are still on the books." *Id.* Once the agency has identified a conflicting past practice, it must suitably justify any deviation. "[I]f an agency glosses over or swerves from prior precedents without discussion it may cross the line from the tolerably terse to the intolerably mute." *Greater Boston Television Corp.*, 444 F.2d at 852. If an agency fails to supply its own "reasoned analysis" to justify its action, the separation of powers prevents this Court from developing one independently. *See Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *SEC v. Chenery Corp.*, 332 U.S. 194, 196 (1947).

EPA's Final Rule reversed its approach on a matter of crucial importance: whether second-generation substitutes can serve as a basis for comparison with non-ozone-depleting substitutes. As we have explained, the Agency emphasized throughout the development of the SNAP regulations—during the rulemaking in the early 1990s, in the regulations themselves, and in actions taken thereafter—that the

program covers replacement of ozone-depleting substitutes and does not extend to the replacement of replacements. EPA's 2015 Final Rule took the opposite tack, even while the Agency professed to be acting "consistent with CAA section 612 as we have historically interpreted it." 80 Fed. Reg. at 42,872 (JA___); *see also id.* at 42,940 (JA___) ("In this rule, we applied the same comparative risk framework that was established for the SNAP program in 1994 and that has been used successfully for over 20 years. When we issued the [Proposed Rule], we did not re-open fundamental parts of the SNAP program.").

Thus, far from having provided a rational explanation for its reversal of position, EPA failed even to acknowledge the change. This "failure to grapple with the past," *Shieldalloy Metallurgical Corp.*, 707 F.3d at 382, makes the Final Rule arbitrary and capricious, even assuming that EPA's new position were authorized by law.

III. EPA'S BANS ON HFCS ARE ARBITRARY AND CAPRICIOUS BECAUSE THE AGENCY FAILED TO FOLLOW ITS REGULATIONS AND POLICIES

Section 612 of the CAA directs that class I and class II substances be replaced with chemicals, products, or manufacturing processes that reduce overall risks to human health and the environment. In its

regulations and policies, EPA has determined that those risk-based decisions are to be made on the basis of certain "guiding principles," 59 Fed. Reg. at 13,046, "information," 40 C.F.R. § 82.178(a), and "criteria," *id.* § 82.180(a)(7). Even assuming that EPA has the authority to replace substances that do not deplete ozone and adequately explained its new position that it will do so, the HFC bans in the Final Rule are still arbitrary and capricious because the Agency failed to follow its policies for SNAP decisions, failed to consider relevant information as defined in the regulations, and failed to apply the decision-making criteria set forth in the regulations. When EPA did purport to consider these factors, it treated the banned HFCs differently than it has treated other chemicals under SNAP without any justification—which is likewise arbitrary and capricious.

An agency may not ignore the factors it has defined as relevant. *Fla. Power & Light Co. v. Lorion*, 470 U.S. 729, 744 (1985). "It is axiomatic," in particular, that "an agency is bound by its own regulations"; that an agency may not "play fast and loose" with its regulations; and that "agency action may be set aside as arbitrary and capricious" if the agency "fails to comply" with its regulations.

NEDACAP, 752 F.3d at 1009 (internal quotation marks omitted). In applying its regulations and policies, moreover, an agency "must treat similar cases in a similar manner unless it can provide a legitimate reason for failing to do so." *Indep. Petroleum Ass'n v. Babbitt*, 92 F.3d 1248, 1258 (D.C. Cir. 1996). "[I]nconsistent treatment is the hallmark of arbitrary agency action." *Catawba Cty. v. EPA*, 571 F.3d 20, 51 (D.C. Cir. 2009).

EPA violated these principles in three basic ways: it failed to find that the banned HFCs pose a significant risk; it failed to analyze the atmospheric effects of the HFCs; and it failed to consider all the costs of the Final Rule.

A. EPA Failed To Find That Each Of The Banned HFCs Poses A Significant Risk

When it developed the SNAP program, EPA followed seven "guiding principles" for the implementation of CAA § 612. 59 Fed. Reg. at 13,046. The Agency purported to apply these principles in developing the Proposed Rule, 79 Fed. Reg. at 46,131 (JA___), and in promulgating the Final Rule, 80 Fed. Reg. at 42,871 (JA___). Even as it acknowledged the continuing validity of those principles, however, EPA deviated from them.

From the earliest days of the program to the present, the Agency has emphasized through its guiding principles that it does not require SNAP substitutes to be risk-free to be acceptable. 59 Fed. Reg. at 13,046. As a corollary, EPA's policy has been to restrict a SNAP substitute only if it is "significantly worse," *id.*; 80 Fed. Reg. at 42,876-42,877 (JA___): the Agency "does not intend to restrict a substitute if it poses only marginally greater risk than another substitute," 59 Fed. Reg. at 13,046. Accordingly, EPA classifies uses of SNAP substitutes as unacceptable only if they "pose significantly higher human health and environmental risks." *Id.* at 13,068.

For the banned HFCs, EPA relied on differences in GWP, even though GWP is just one of the pieces of information to be considered in gauging atmospheric effects. When the Agency created the SNAP program, it described its evaluation of atmospheric effects as encompassing much more, including "[a]nalysis of total global warming potential," which in turn includes consideration of "atmospheric lifetime," "changes in fossil fuel use due to increases or decreases in energy efficiency," and modeling. 59 Fed. Reg. at 13,068. Nowhere in

the Final Rule does EPA explain when a difference in GWP alone constitutes a "significant risk."

Before the Agency can restrict any previously-approved SNAP substitute, it must make a finding that the substitute poses a significant risk that can be eliminated by re-classification. While this obligation is not a "mathematical straitjacket," *Indus. Union Dep't, AFL-CIO v. API*, 448 U.S. 607, 655 (1980) (plurality op.), EPA still must determine what it considers to be a significant risk and characterize it in an understandable way, *see id.* at 646. It is not enough for the Agency to say that HFCs contribute to climate change and to assume that the risk will decrease as long as the Final Rule leads to some decreases in emissions. *Compare id.* (granting agency discretion to require any reduction in chemical exposure would be "such a 'sweeping delegation of legislative power' that it might be unconstitutional") *with* Response to Comments 162 (JA___) ("any HFC emissions avoided will reduce environmental risk").

Yet that is as far as EPA went in assessing the risk of the banned HFCs. The Agency cited prior findings of climate change, a worldwide increase in HFC emissions, and its belief that total U.S. emissions are

increasing. 80 Fed. Reg. at 42,879 (JA___). That evidence establishes only that the banned HFCs may pose *some* risk to climate. It says nothing about the *significance* of the risk posed by each of the banned HFCs.

Without analyzing the significance of the risk, EPA cannot know whether it is demanding more than Section 612 requires. *See EPA v. EME Homer City Generation, L.P.*, 134 S. Ct. 1584, 1608 (2014) (EPA cannot compel reductions in air pollution beyond what CAA requires). For the Agency, the level of risk posed by air emission of the banned HFCs apparently is irrelevant. EPA's failure to find a significant risk is arbitrary and capricious.

B. EPA Failed To Analyze The Atmospheric Effects Of The Banned HFCs And Instead Used GWP As A Proxy

Under the SNAP regulations, EPA is to consider information concerning (1) "[g]lobal warming impacts," including *both* the "total global warming potential of the substitute" *and* "the indirect contributions to global warming caused by the production or use of the substitute (e.g., changes in energy efficiency)," and (2) "environmental release data," including "available information on any pollution controls used or that could be used in association with the substitute." 40 C.F.R.

§ 82.178(a)(6), (11). With that information in hand, the Agency is to evaluate "[a]tmospheric effects and related health and environmental impacts." 40 C.F.R. § 82.180(a)(7)(i).[4]

Rather than undertaking that evaluation in the Final Rule, EPA converted one aspect of the information to be submitted—GWP—into *the* criterion for decision-making. The Agency also failed to account for the indirect contributions to global warming of the banned HFCs' replacements; failed to consider the extent to which those HFCs contribute to climate change; and failed to consider controls on the HFCs' emissions. Each of these actions—or inactions—is arbitrary and capricious.

1. A "high" GWP is not the same as an unacceptable atmospheric effect

GWP is a physical characteristic of a gas. By itself, divorced from context, it tells no more about overall risk than do physical characteristics like flammability, which EPA has rejected as a *per se*

[4] EPA says it "uses all information submitted [under § 82.178] to inform its general understanding" but "does not use all the information for listing decisions." Response to Comments 178 (JA___). Having made the information in § 82.178 relevant, however, the Agency must explain why any particular piece of it does not pertain to the risk of the banned HFCs or the practicability of EPA's decisions.

basis for SNAP exclusion, *see, e.g.,* Protection of Stratospheric Ozone: Listing of Substitutes for Ozone-Depleting Substances—Hydrocarbon Refrigerants, 76 Fed. Reg. 78,832, 78,838-78,839 (Dec. 20, 2011). As the Agency itself has explained in rejecting a prior effort to delist HFC-134a in cars, a physical characteristic alone does not justify a change in status: "It is not sufficient to simply claim that a hazard exists with respect to HFC-134a. There must be a reasonable expectation that the risk is real." Response to OZ Technology's Petition, Attachment at 14 (JA___).

This precludes use of GWP as *the* criterion for SNAP acceptability. EPA previously has recognized that "[i]n practice a high GWP does not necessarily mean a large impact on warming" and that "[i]f chemicals are never emitted they cannot cause a direct contribution to global warming even if they have high GWPs." EPA, Risk Screen on the Use of Substitutes for Class I Ozone-Depleting Substances: Refrigeration and Air Conditioning 97 (Mar. 15, 1994) (JA___). Rather than accounting for emissions and determining whether any effect is real, the Final Rule resorts to a claim of potential hazard.

The flaw in the Final Rule's approach is easily seen in two sets of the Agency's comparisons. First, in a variety of end uses, EPA treats HFC-134a, with a GWP of 1430, as a greater risk than carbon dioxide, with a GWP of 1.[5] Under the Agency's test, carbon dioxide always is acceptable. Outside of SNAP, however, EPA has concluded that total carbon dioxide emissions are the leading cause of the radiative forcing leading to climate change. *See* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,519 (Dec. 15, 2009) ("[C]arbon dioxide is projected to be the largest contributor to total radiative forcing in all periods, and the radiative forcing associated with carbon dioxide is projected to be the fastest growing."). To the extent that the Agency wants to regulate collective global climate impacts, therefore, it should focus on carbon dioxide.

On the other hand, if carbon dioxide poses an acceptable risk, and if differences in GWP determine risk, then once EPA has found that carbon dioxide is "currently or potentially available" for any given use,

[5] The Final Rule finds that carbon dioxide poses an acceptable risk, while claiming that HFC-134a is 1430 times worse. *See, e.g.*, 80 Fed. Reg. at 42,936 (JA___). But zero risk multiplied by 1430 is zero.

as required by CAA § 612(c)(2), 42 U.S.C. § 7671k(c)(2), *any* other chemical with greater GWP should be unacceptable in that end use under SNAP. Apparently there is some unstated magnitude of difference, in the Agency's view, that has no atmospheric effect.

The second set of comparisons illustrating the breakdown of EPA's GWP-centric approach is the comparison of HFC-134a with two refrigerant blends (R-450A and R-513A) the Agency approved contemporaneously with the Final Rule. Protection of Stratospheric Ozone: Determination 30 for Significant New Alternatives Policy Program, 80 Fed. Reg. 42,053, 42,054-42,057 (July 16, 2015). Each blend contains HFC-134a and has been deemed acceptable in applications for which EPA banned use of HFC-134a by itself. If, however, GWP alone determines whether there is an unacceptable risk of atmospheric effects, then the presence of HFC-134a in the blends should have rendered them unacceptable as well. Perhaps there is some point at which the atmospheric effect of GWP is deemed sufficiently diluted in a particular use to be ameliorated. But EPA has not told us what that is.

Under its own regulations, the Agency must evaluate the acceptability of a SNAP substance based on atmospheric effect. It previously has concluded that the effect of global warming does *not* depend solely on GWP, and in CAA § 602(e) Congress itself has forbidden EPA from using GWP as the sole basis—or indeed as *any* basis—for regulating ozone-depleting substances themselves, *see* 42 U.S.C. § 7671a(e). If the Agency wants to use just one piece of submitted information, it must explain how GWP and atmospheric effect are related for each SNAP substitute, rather than simply justifying the use of GWP by invoking the CAP.

2. EPA failed to account for the indirect contributions to global warming of the banned HFCs' replacements

Even if EPA had related the GWP of each banned HFC to climate change, it still would not have had an adequate measure of risk. Under the Agency's regulations, a SNAP evaluation is to be based on information about "total global warming potential of the substitute." 40 C.F.R. § 82.178(a)(6). This is to include information on "indirect contributions to global warming" such as "energy efficiency." *Id.*

In the 1994 SNAP rule, the Agency emphasized that energy efficiency is part of the risk analysis: "EPA's evaluation of each substitute in an end use is based on *** changes in fossil fuel use due to increases or decreases in energy efficiency resulting from production or use of the substitutes." 59 Fed. Reg. at 13,068. Thus, "the overall risk characterization for substitutes under SNAP specifically takes into account indirect contributions to global warming." *Id.* at 13,084. The Agency recognized that a substitute's performance is a related, important factor: "[I]n certain sectors, performance of the substitute does pertain directly to environmental or health effects. For example, in refrigeration, the ability of a refrigerant replacement to serve as a coolant will directly influence the substitute's energy efficiency, which in turn will affect the substitute's environmental effects." *Id.* at 13,068.

EPA has continued to acknowledge the importance of efficiency, especially for climate effects, up to the present day:

> The total environmental effects *** of these refrigerants also depend upon the energy use of appliances, since the "indirect" GHG emissions associated with electricity consumption typically exceed those from refrigerants over the full lifecycle of refrigerant-containing products. If appliances designed to use refrigerants listed as acceptable in this final rule are less energy efficient than the appliances they replace, then it is possible that these

> appliances would result in higher lifecycle GHG emissions than appliances using a higher GWP refrigerant or refrigerant substitute.

Protection of Stratospheric Ozone: Listing of Substitutes for Refrigeration and Air Conditioning and Revision of the Venting Prohibition for Certain Refrigerant Substitutes, 80 Fed. Reg. 19,454, 19,469 (Apr. 10, 2015) (citation omitted). Even the CAP recognized the importance of energy efficiency in addressing climate change. *See* Climate Action Plan 9 (JA___) (energy efficiency is "one of the clearest and most cost-effective opportunities to *** reduce greenhouse gas emissions").

In the 2015 Final Rule itself, the Agency understood that energy efficiency was "important information," Response to Comments 179 (JA___), and that the banned HFCs could and did offer greater efficiency in certain applications. Thus, for foam blowing EPA noted that "there is a range of thermal conductivity and insulation values among the alternatives, with some having lower values than the HFCs EPA proposed to list as unacceptable, some having higher values, and others having comparable values." *Id.* at 126 (JA___). Many commenters likewise believed that the Agency's refrigerant bans would

decrease efficiency, *see, e.g.,* 80 Fed. Reg. at 42,945 (JA___), and EPA conceded that each of its approved replacements did not necessarily offer superior efficiency as compared with the banned HFCs, *id.* at 42,947 (JA___).

Despite acknowledging the importance of efficiency to global warming, EPA took the position that "we do not have a practice in the SNAP program of including energy efficiency in the overall risk analysis." *E.g.*, 80 Fed. Reg. at 42,921 (JA___). Even if this were true, it would not explain why efficiency should be disregarded in the Agency's first-ever decision to delist previously approved SNAP chemicals on the basis of climate change. Rather than coming to grips with the relationship between efficiency and atmospheric effects, EPA chose to treat the issue solely as a question of whether chemicals were "available." Response to Comments 86 (JA___). This maneuver then allowed the Agency to say that it was declaring multiple alternatives acceptable, thereby leaving the choice of a replacement to users. 80 Fed. Reg. at 42,901 (JA___). At the same time, EPA recognized that this choice will turn on a variety of factors *other than* efficiency, including, in the case of refrigerants, "the product temperature required, ***

system performance, ambient temperatures, operating conditions, potential impact on community safety, potential risk to personal safety, cost, and minimization of direct and indirect environmental impacts." *Id.*

At best, EPA does not know what energy efficiencies will result from the Final Rule, in which case it does not know whether the HFC bans reduce atmospheric effects and risks. At worst, the HFC bans will lead to use of less-energy-efficient replacements and an increase in GHG emissions. In either event, the Agency should have analyzed the efficiency risks posed by its replacements instead of equivocating and trusting users to make emissions come out right. Failure to consider this important aspect of risk from global warming is arbitrary and capricious. *See OZ Tech.*, 129 F.3d at 635; *see also Corrosion Proof Fittings v. EPA*, 947 F.2d 1201, 1221 (5th Cir. 1991) (unreasonable for EPA to refuse to evaluate harms from substitutes for banned products).

3. EPA failed to consider the extent to which direct emissions of the banned HFCs contribute to climate change

As discussed above, GWP is the only factor EPA considered in analyzing climate-change atmospheric effects. The Agency thus failed to

heed its own regulations, which require consideration of "total global warming potential," including both indirect and direct global-warming effects. 40 C.F.R. § 82.178(a)(6).

EPA's usual method of assessing the direct effect of a SNAP substance is to analyze hazard in light of the extent of exposure. In the case of air pollutants, the extent of exposure depends on the level of emissions. *See* 80 Fed. Reg. at 42,877 (JA___) ("SNAP program uses exposure assessments to estimate concentration levels of substitutes to which *** the environment may be exposed," including through "[r]eleases to ambient air"). The Agency collects "environmental release data" pursuant to 40 C.F.R. § 82.178(a)(11) for just this reason. *See also* 59 Fed. Reg. at 13,055-13,056 ("Data on emissions *** are needed to complete the risk characterization."). This is EPA's standard course whenever it assesses risk: it combines a hazard assessment with an exposure assessment.[6]

In the case of GHGs, EPA typically compares the level of emissions for the regulated sector with all U.S. emissions and all

[6] That is why SNAP decisions are made on the basis of particular uses. "Environmental and human health exposures can vary significantly depending on the particular application of a substitute." 80 Fed. Reg. at 42,878 (JA___).

international emissions. Thus, the Agency concluded that GHGs from cars endanger public health and welfare "after reviewing emissions data on the contribution of [the regulated] source categories relative to both global *** and U.S. greenhouse gas emissions." 74 Fed. Reg. at 66,537. According to EPA, these were "simple and straightforward comparisons." *Id.* at 66,539. U.S. cars accounted for "about 4 percent of total global greenhouse gas emissions, and for just over 23 percent of total U.S. greenhouse gas emissions." *Id.* at 66,537. For the Agency, this was a "meaningful contribution." *Id.* at 66,538 (internal quotation marks omitted).

By contrast, EPA recognized that HFCs *on the whole* "represent a small fraction of the current total volume of GHG emissions." 80 Fed. Reg. at 42,879 (JA___). The Agency did not compare each banned HFC, or even each sector, with total U.S. and international emissions, but it did estimate "benefits" in the form of the Final Rule's direct emissions savings in 2020 in the refrigerant, foam, automotive-export, and consumer-aerosol sectors.[7] EPA's estimated savings would amount to

[7] Contrary to the SNAP Guiding Principles, EPA did not calculate savings for each banned HFC in each end use. Thus, any emissions savings may be due to one specific banned HFC in a particular

0.38%, 0.046%, 0.015%, and 0.0077%, respectively, of U.S. 2012 GHG emissions. As compared with best-case projected global emissions in 2020, the savings would be 0.048%, 0.0058%, 0.0019%, and 0.00096%.[8] These are far from "meaningful contributions."

For purposes of the SNAP program, EPA has applied a similar test to other air emissions. Thus, the Agency has approved hydrocarbons and other chemicals as refrigerants, aerosols, and foam-blowing agents that are volatile organic compounds ("VOCs") with the potential to contribute to smog. EPA does not automatically find that any emission of VOCs would add to smog and then conclude that they are unacceptable. Instead, the Agency assesses the significance of a VOC SNAP candidate's emissions level in its proposed use. *See*, *e.g.*, Protection of Stratospheric Ozone: Notice 25 for Significant New

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application. The reason for the lack of detail was that the Agency "intended to avoid creating an incentive" to switch from one high-GWP HFC to another. Response to Comments 172 (JA___). But EPA never discussed the likelihood of any such switches, estimated their magnitude, or assessed the effect on its risk analyses.

[8] Percentages have been calculated using the approach described in Arkema Comments 16-17 (JA___-___) and the updated emissions savings estimates in EPA, Climate Benefits of the SNAP Program Status Change Rule (July 2015) (JA___-___).

Alternatives Policy Program, 75 Fed. Reg. 34,017, 34,022 (June 16, 2010) (comparing emissions from refrigerant blends to "total emissions of VOCs from all sources"). Similarly, the Agency has approved SNAP chemicals with a measurable potential to deplete ozone because estimates of worst-case emissions showed that they would have a statistically insignificant atmospheric effect. *See*, *e.g.*, Protection of Stratospheric Ozone: Determination 28 for Significant New Alternatives Policy Program, 78 Fed. Reg. 29,034, 29,037 (May 17, 2013).

By contrast, EPA did not assess the contribution of each banned HFC in each end use or each sector to the atmospheric effect of global warming. Instead, the Agency looked to collective global impacts, Response to Comments 161 (JA___), and HFCs as a whole, *id.* at 173 (JA___). This is guilt by association—use of total HFCs as a class is increasing in the world and HFCs are GHGs. EPA even disclaimed any reliance on the emissions benefits of the Final Rule. 80 Fed. Reg. at 42,941, 42,945 (JA___, ___). This is inconsistent with the Agency's regulations and how it assesses similarly situated SNAP substances. In other words, the Final Rule is an air regulation for which the amounts of the regulated substances released to the environment are irrelevant.

4. EPA failed to consider controls on the banned HFCs' emissions

In the course of performing a SNAP evaluation, EPA must assess potential information about "controls," both those that are "used" and those that "could be used." 40 C.F.R. § 82.178(a)(11). This enables the Agency to determine whether an existing control will reduce the risk of an adverse effect or whether adding a use restriction through the SNAP process will do so. While EPA followed this approach for its HFC replacements, it chose to ignore techniques for reducing atmospheric effects of the banned HFCs.

Title VI itself currently restricts emission of the banned HFCs used as refrigerants, thereby mitigating any impact on climate. Specifically, CAA § 608(c)(2) forbids any person maintaining, servicing, repairing, or disposing of a home- or industrial-refrigeration device from venting, releasing, or disposing of any substitute for a class I or class II substance. 42 U.S.C. § 7671g(c)(2). EPA routinely has concluded that this venting prohibition limits the contribution to global warming of SNAP-approved substances. Most recently, the Agency cited CAA § 608(c)(2) in adding to the SNAP approved list four refrigerant blends. 80 Fed. Reg. at 42,054-42,057. By contrast, when Arkema commented

that Section 608(c)(2) would limit emissions of the banned HFCs, Arkema Comments 28-29 (JA___-___), the Agency responded that the provision does not apply to "all HFC refrigerant emissions," Response to Comments 167 (JA___).

EPA should have treated the banned HFCs the same way it treated the four blends—as controlled by Section 608(c)(2). Before discounting the effect of that provision, the Agency at least should have determined how much was being left uncontrolled, what atmospheric effect it was having, and whether that effect was significant. Rather than analyzing these issues, EPA was satisfied that, however large or small the impact, the availability of a lower-GWP replacement justified delisting the HFCs in service of the CAP. That is not consistent with the SNAP regulations and policies.

EPA likewise refused to consider additional controls in the form of use restrictions. Imposition of such controls is commonplace under SNAP, as demonstrated by the list of acceptable substances subject to use restrictions at 40 C.F.R. Part 82, Subpart G, Appendix B. To take just one example, the Agency approved three hydrocarbons for use in refrigerators and freezers, even though EPA "concluded that without

mitigation, the risks posed by these refrigerants would be higher than other non-flammable refrigerants." 76 Fed. Reg. at 78,837. Instead of declaring these flammable refrigerants unacceptable, the Agency imposed "use conditions to ensure that the overall risks to human health and the environment are lower than or comparable to the overall risk posed by other substitutes in the same end-use." *Id.* EPA later used the refrigerants as a basis for comparison with the banned HFCs.

When Arkema asked for the same kind of treatment by endorsing industry requests—submitted more than six months *before* the Proposed Rule—to add refrigerant-management conditions for the HFCs, Arkema Comments 30 (JA___), the Agency responded that such conditions were outside the scope of the Final Rule, Response to Comments 166 (JA___). Less than four months after issuing the Final Rule, EPA then proposed enhanced management standards for the remaining refrigerants that "would significantly reduce emissions of refrigerants and thus ameliorate the harm they would cause to the environment." Protection of Stratospheric Ozone: Update to the Refrigerant Management Requirements Under the Clean Air Act, 80 Fed. Reg. 69,458, 69,460 (Nov. 9, 2015). When it came to use

restrictions, the Agency's treatment of the banned HFCs again was inconsistent with its treatment of other refrigerants.

Similarly, for the aerosol, automotive, and foam-blowing sectors, Arkema commented that EPA should require manufacturers to conduct engineering analyses such as a Failure Mode and Effect Analysis. Arkema Comments 25-27 (JA___-___). This is a systematic engineering process to identify high risks and keep them from occurring. The Agency has found that such analyses appropriately control risks from emissions of two automotive refrigerants that EPA found acceptable to replace HFC-134a and that past engineering strategies did reduce risks from HFCs. *See* Response to Comments 175 (JA___) ("EPA also agrees that industry practice to minimize emissions have reduced the potential greater climate impacts that would be associated with leaky systems and poor servicing conditions.").

Notwithstanding these previous endorsements, EPA rejected such controls in the Final Rule. Its refusal was based on (i) prior cases where it limited GHG approval to subsectors (including a subsector "unlikely to result in significant total emissions"), (ii) one prior case where it found a class II substance unacceptable, and (iii) its belief that

engineering controls in the regulated sectors do not address global emissions. *See* 80 Fed. Reg. at 42,899 (JA___). None of those arguments addressed why use controls would not render the risk of the banned HFCs "comparable" to their replacements.

Despite regularly applying use restrictions to approve alternatives to the banned HFCs, and despite previously having found that use restrictions are effective for GHGs, EPA failed to assess how much use restrictions would reduce the atmospheric effects of the banned HFCs and whether they would reduce HFCs' risks to an acceptable level. Thus, the Final Rule is an air regulation for which controls are irrelevant.

C. EPA Failed To Consider All The Costs Of The Final Rule

The SNAP regulations require EPA to make decisions based on information about "[d]etail on the changes in technology needed to use the alternative," including "[d]ata on the cost (capital and operating expenditures)," "[d]ata on the expected average cost of the alternative," and "[o]ther critical cost considerations." 40 C.F.R. § 82.178(a)(13)-(14). EPA has listed the critical cost considerations: "[c]hemical cost data," 59 Fed. Reg. at 13,064, "[i]ncremental equipment expenditures (either new

or retrofit) needed to use the substitute," *id.*, and "incremental costs associated with losses or gains in energy efficiency associated with use of a substitute relative to current experience," *id.* at 13,056. With that information, EPA is to evaluate "[c]ost and availability of the substitute." 40 C.F.R. § 82.180(a)(7)(vii).

The Final Rule contravenes these SNAP cost regulations in multiple ways. First, despite its regulations declaring transition costs relevant, EPA has claimed that "consideration of cost" under SNAP "is limited to cost of the substitute under review" and "does not include the cost of transition when a substitute is found unacceptable." 80 Fed. Reg. at 42,898 (JA___). Second, as discussed above, the Agency has chosen to ignore efficiency penalties. *See also* EPA, Revised Cost Analysis for Regulatory Changes to the Listing Status of High-GWP Alternatives 2 (July 2015) (JA___). Third, while EPA has produced a cost analysis, it is not part of the Agency's risk analysis. 80 Fed. Reg. at 42,941 (JA___). Finally, EPA has confirmed that cost did not factor into its decision-making because it "has not determined whether the term 'practicable,' the term 'available,' or other terms in section 612 provide discretion to consider such costs." *Id.* at 42,942.

In sum, the Agency has blinded itself to any factor that might interfere with the CAP. Despite protestations to the contrary in the Final Rule, EPA previously has determined that transition and efficiency costs are relevant to SNAP decisions. It has ample support for that position. *See EME Homer City Generation*, 134 S. Ct. at 1607 (EPA properly took account of cost, despite absence of any statutory instruction to do so, in deciding which amounts of air pollution to eliminate); *Michigan v. EPA*, 213 F.3d 663, 678 (D.C. Cir. 2000) ("settled law of this circuit" is that "we find agencies barred from considering costs" "only where there is 'clear congressional intent to preclude consideration of cost'"); *see also Honeywell Int'l v. EPA*, 374 F.3d 1363, 1373 (D.C. Cir. 2004) (finding it "at least facially plausible" that CAA § 612 allows consideration of costs but declining to decide whether it does), *modified on other grounds*, 393 F.3d 1315, 1316 (D.C. Cir. 2005) (*per curiam*). Having determined that transition and efficiency costs are relevant to SNAP decisions, the Agency's refusal to consider them renders the Final Rule arbitrary and capricious.

IV. EPA'S BANS ON HFCS ARE ARBITRARY AND CAPRICIOUS BECAUSE THE AGENCY FAILED TO PROVIDE OBJECTIVE STANDARDS FOR DETERMINING WHICH CHEMICALS ARE ACCEPTABLE

Even if the Court were to accept that EPA has both statutory and regulatory authority to replace substances that do not deplete ozone, that the Agency has satisfactorily explained its change in position on whether it will do so, and that EPA appropriately considered the relevant factors under its regulations and policies, the Final Rule still would be arbitrary and capricious, because the Agency failed to establish an objective basis for its decisions.

Agencies must "articulate the standards and principles that govern their discretionary decisions in as much detail as possible." *EDF v. Ruckelshaus*, 439 F.2d 584, 598 (D.C. Cir. 1971). An agency action "is arbitrary and capricious" if the agency "fails to articulate a comprehensible standard" for the action. *USPS*, 785 F.3d at 753. Even when an agency uses relational comparisons, it must supply "some metric for classifying materials." *Tripoli Rocketry Ass'n*, 437 F.3d at 81 (emphasis omitted).

In the Final Rule, EPA decided to compare chemicals by classifying their GWPs as "significantly lower," "lower," "higher," and

"significantly higher." *E.g.*, 80 Fed. Reg. at 42,882, 42,883, 42,890, (JA___, ___, ___). Concurrently with the Final Rule, EPA approved four blends containing HFCs, in part because their GWPs are "comparable" to other approved chemicals. 80 Fed. Reg. at 42,058. Nowhere, however, has the Agency related any of its GWP classifications either to risk or to the specific SNAP evaluation criteria in 40 C.F.R. § 82.180. What EPA has done is thus no different than the agency's attempt in *Tripoli Rock*etry to classify a chemical as an explosive because it reacted "much faster" than what is commonly achieved by burning. 437 F.3d at 81. Without a "point[] of comparison," such classifications are arbitrary and capricious. *Id.* at 82.

On their face, EPA's specific conclusions in the Final Rule lack any discernible basis. In the food-refrigerant sector alone, the Agency rested its HFC bans on a bewildering set of GWP ranges. For new supermarkets, refrigerants with GWPs ranging from 0 to 2630, including HFC-134a, are acceptable. 80 Fed. Reg. at 42,904 (JA___). That means that EPA must have concluded that there is no significant difference in risk between the ends of that range. Yet refrigerants with GWPs ranging from 2730 to 3985 are banned. *Id.*

What is the difference in risk between a refrigerant with a GWP of 2630 (which is acceptable) and one with a GWP of 2730 (which is not)? EPA never says. 2730 is larger than 2630, but then 2630 is larger than 0. Apparently the Agency considers 0 and 2630 to be "comparable," whereas 2630 and 2730 are not. Relative magnitude of difference obviously is not the answer. The same problem inheres in all the refrigeration subsectors: for supermarket retrofits, 100-2630 is acceptable but 2730-3985 is not, 80 Fed. Reg. at 42,905 (JA___); for medium-temperature stand-alone units, 1-630 is acceptable but 900-3985 is not, *id.* at 42,912 (JA___); for low-temperature stand-alone units, 1-1500 is acceptable but 1800 is not, *id.*; for new vending machines, 1-630 is acceptable but 1100 is not, *id.* at 42,917 (JA___); and for retrofit vending machines, 100-3085 is acceptable but 3922-3985 is not, *id.* at 42,919 (JA___).

According to EPA, there is no difference in risk between GWPs of 0 and 2630 for a new supermarket system, or between 100 and 3085 for a retrofit vending machine. HFC-134a, with a GWP of 1430, therefore poses an acceptable risk in those uses. In the aerosol, automobile, and foam sectors, however, EPA has banned HFC-134a in favor of chemicals

with GWPs up to 124. Presumably the Agency does not consider 124 and 1430 to be "comparable."

There is a hint in the Final Rule as to EPA's thought process. The Agency says it "considers factors such as charge size of refrigeration equipment and total estimates of production in its assessment of environmental and health risks of new alternatives, so [it] can consider if there would be substantial differences that might affect total atmospheric emissions." 80 Fed. Reg. at 42,938 (JA___). The problem with this reasoning is that the record contains no such atmospheric-emissions analysis. And while acknowledging that atmospheric emissions are relevant to its risk analysis, EPA takes the position that its benefits analysis—with its estimates of the emissions reductions expected to result from the Final Rule—is irrelevant to risk. *Id.* at 42,941 (JA___).

Even if EPA were to ban HFCs based on the exact same GWP ranges, the Agency still would need to supply a metric linking the GWPs of banned substances to the statute, its regulations and policies, and its criteria for evaluation. Yet EPA is straightforward in stating that it "has not determined a specific amount of HFC *** that must be

reduced in order to mitigate climate risks," Response to Comments 162 (JA___), which means that the threshold for causing an unacceptable atmospheric effect also is undefined. Nor does the Agency link the banned HFCs to any specific environmental harm from their atmospheric effects, such as ocean acidity, sea levels, or temperatures. *Compare* Arkema Comments 17-18 (JA___) *with* Response to Comments 170 (JA___). This is unacceptable if EPA's intent is to address the risk of atmospheric effects, as its regulations require.

Somewhere, sometime, the Agency must define the standard it is trying to satisfy. This requires sufficient quantification to characterize the risk in an understandable way. *See Indus. Union Dep't,* 448 U.S. at 646. Indeed, that is EPA's usual approach to SNAP decisions. *See OZ Tech.*, 129 F.3d at 636 (EPA appropriately decided to reject risk analysis that "failed to quantify risks at all" in a "scientifically valid, comprehensive" way).

In the end, the Final Rule's HFC bans are arbitrary and capricious because EPA has not explained the basis either for its comparisons with the replacements or for the delistings. For the Agency, it appears that meaningful differences in GWPs, as well as

control of residual risk, are like pornography for Justice Stewart: EPA knows them when it sees them. *See Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring). This turns application of SNAP "into an exercise in totally standardless discretion." *Dithiocarbamate Task Force v. EPA*, 98 F.3d 1394, 1402 (D.C. Cir. 1996). The Agency's "boundless" standard is "unreasonable," as proven by its "inconsistent application," and accordingly is arbitrary and capricious. *USPS*, 785 F.3d at 744.

CONCLUSION

The petitions for review should be granted, the Final Rule vacated, and the matter remanded to EPA.

March 28, 2016

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(a)(7)(C), I hereby certify that this brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B)(i) because it contains 13,959 words, excluding the parts exempted by Fed. R. App. P. 32(a)(7)(B)(iii) and D.C. Cir. R. 32(e)(1). I further certify that this brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type-style requirements of Fed. R. App. P. 32(a)(6) because the brief was prepared in 14-point Century Schoolbook font using Microsoft Word.

March 28, 2016

/s/ Dan Himmelfarb
Dan Himmelfarb

CERTIFICATE OF SERVICE

I hereby certify, pursuant to Fed. R. App. P. 25(d)(1)(B) and D.C. Cir. R. 25(f), that, on March 28, 2016, the foregoing was electronically filed with the Clerk of the Court using the CM/ECF system, which will send a notification to the attorneys of record in this matter who are registered with the Court's CM/ECF system.

March 28, 2016

/s/ Dan Himmelfarb
Dan Himmelfarb

STANDING ADDENDUM

No. 15-1328

United States Court of Appeals for the D.C. Circuit

MEXICHEM FLUOR, INC.,

Petitioner,

v.

ENVIRONMENTAL PROTECTION AGENCY,

Respondent,

CHEMOURS COMPANY FC, LLC, ET AL.,

Intervenors.

On Petition for Review from the United States Environmental Protection Agency

Consolidated with No. 15-1329

DECLARATION OF JOHN PACILLO

I, John Pacillo, hereby declare under penalty of perjury as follows:

1. Mexichem Fluor, Inc. ("MFI") is a Delaware corporation that manufactures hydrofluorocarbons (HFCs). I currently am Operations Director of MFI. My responsibilities include, among other things, managing the production operation for manufacture of HFCs. I have been in this position since August 2001 for INEOS Fluor, MFI's predecessor, and since April 2010 for MFI.

2. MFI is a 100%-owned indirect subsidiary of Mexichem S.A.B. de C.V., a global specialty chemicals company that produces the raw materials for key products used in infrastructure, housing, drinking water, and other vital industries.

3. Relevant to this case, MFI is the world's leading manufacturer of HFC-134a, a key alternative to chlorofluorocarbons (CFCs) and hydrochloro-fluorocarbons (HCFCs). The HFC-134a production represented 90% of MFI's revenues and 85% of its EBITDA (earnings before interest, taxes, depreciation, and amortization) in 2015.

4. MFI produces HFC-134a in St. Gabriel, Louisiana under the trade names Klea 134a and Zephex 134a. After first opening in 1992, MFI's St. Gabriel plant expanded its operations in 1994, 1996, and 2006 to meet increased market demand. Today, the St. Gabriel plant is the world's largest HFC-134a production facility with an enterprise value of approximately $300 million. MFI employs 72 people and is responsible for generating an additional 300 jobs indirectly through maintenance, support, and other economic activity.

5. HFC-134a is a refrigerant that has zero ozone-depletion potential ("ODP"), very low toxicity, and is practically non-flammable.

6. Over the past two decades, the Environmental Protection Agency ("EPA") approved HFC-134a under the Significant New Alternatives Policy ("SNAP") program as an acceptable substitute for ozone-depleting chemicals in many uses. For instance, in 1995, EPA approved HFC-134a as an acceptable substitute for CFC-12, a class I ozone-depleting chemical, for use in motor vehicle air conditioning ("MVAC") systems. *See* Protection of Stratospheric Ozone, 60

Fed. Reg. 31092 (Jun. 13, 1995). Also in 1995, HFC-134a became an acceptable substitute for R-400 (60/40) and CFC-114 in new industrial process air conditioning and for CFC-12 in new household refrigerators. *See* Protection of Stratospheric Ozone, 60 Fed. Reg. 3318 (Jan. 13, 1995). Then, in 1996, EPA approved and listed HFC-134a as an acceptable substitute for HCFC-22 in new household and light commercial air conditioning. *See* Protection of Stratospheric Ozone, 61 Fed. Reg. 4736 (Feb. 8, 1996). In 1999, HFC-134a was added to the list of acceptable substitutes for HCFCs in all foam blowing end-uses. *See* Protection of Stratospheric Ozone, 64 Fed. Reg. 30410 (Jun. 8, 1999). And, in 2001, EPA approved HFC-134a as an acceptable substitute for CFC-12 and R-502 in retail food refrigeration, cold storage warehouses, and refrigerated transport, and as an acceptable substitute for CFC-11, CFC-12, CFC-114, CFC-115, and R-502 in industrial process refrigeration. *See* Protection of Stratospheric Ozone: Notice 15 for Significant New Alternatives Policy Program, 66 Fed. Reg. 28379 (May 21, 2001).

7. On August 6, 2014, however, EPA published a notice of proposed rulemaking that proposed to de-list certain HFCs, including HFC-134a, based on the global warming potential ("GWP") of the previously approved HFCs. Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes

Under the Significant New Alternatives Policy Program, 79 Fed. Reg. 46126, 46134 (Aug. 6, 2014).

8. Together with many other concerned parties, MFI submitted written comments, advancing several arguments as to why EPA's proposed rule had significant flaws. MFI's concerns about the proposed rule included the following: (i) EPA lacks statutory authority under Clean Air Act § 612 to regulate global warming; (ii) the proposed rule does not show how any of the alternatives to HFC-134a "reduce overall risk to human health" under § 612; (iii) EPA's timelines on de-listing HFC-134a uses for MVAC systems, foam-blowing agents, and aerosol propellants are unrealistic and will result in insufficient supply, hinder competition, and have a detrimental effect on many small businesses; and (iv) de-listing HFC-134a, which is highly energy-efficient, may be counter-productive to EPA's goal of combatting climate change. *See* Comments of Mexichem Fluor, Inc., EPA-HQ-OAR-2014-0198-0101 at 1 (Oct. 20, 2014).

9. MFI's and other commenters' concerns had no impact on the EPA, however, and on July 20, 2015, the Agency published a rule that changed the status of 38 individual HFCs or HFC blends from acceptable to unacceptable in 25 uses ("the Final Rule"). This effectively bans the use of those chemicals in the relevant applications.

10. The effect of the Final Rule for MFI is that it will lose a significant portion of sales and revenues from the manufacture of HFC-134a. Prior to EPA's de-listing of HFC-134a, MFI's St. Gabriel plant manufactured, on average, 35,300 metric tons of HFC-134a annually. With the Final Rule in place, MFI will have no choice but to reduce HFC-134a production drastically. I estimate that the associated revenue loss to MFI will be at least 33% initially and over 65% as the regulation continues to take effect.

John Pacillo
Operations Director
Mexichem Fluor, Inc.

March 24, 2016

No. 15-1328

United States Court of Appeals for the D.C. Circuit

MEXICHEM FLUOR, INC.,

Petitioner,

v.

ENVIRONMENTAL PROTECTION AGENCY,

Respondent,

CHEMOURS COMPANY FC, LLC, ET AL.,

Intervenors.

On Petition for Review from the United States Environmental Protection Agency

Consolidated with No. 15-1329

DECLARATION OF MATTHEW RITTER

I, Matthew Ritter, hereby declare under penalty of perjury as follows:

1. I currently work for Arkema Inc. ("Arkema") at its U.S. headquarters in King of Prussia, Pennsylvania as Director, Government Affairs. My responsibilities include the management of Arkema's fluorochemical portfolio with respect to public advocacy, compliance, and regulatory development. I have been in that position since August 2011 and have worked for Arkema for twenty years. This declaration is

based on my personal knowledge, and I am authorized to provide this declaration on Arkema's behalf.

2. Arkema is a world-class producer of industrial chemicals. Several of our fluorochemicals products are part of a chemical family called hydrofluorocarbons, or HFCs, because they are made up only of hydrogen, fluorine, and carbon atoms. One of Arkema's HFC products is the chemical 1,1,1,2-tetrafluoroethane, better known as HFC-134a and sometimes as R-134a (where the "R" stands for "refrigerant"). Arkema has two plants that make HFC-134a, one of which is located in Calvert City, Kentucky. Other Arkema products containing HFCs include two refrigerant blends, R-404A and R-507A.

3. Because they do not contain a chlorine or bromine atom, none of the HFCs contributes to the ozone hole by depleting stratospheric ozone. Consequently, HFCs were recognized and utilized as effective substitutes for ozone-depleting chemicals such as chlorofluorocarbons and hydrochlorofluorocarbons.

4. Arkema's HFCs, including HFC-134a, serve as refrigerants for air conditioning (in homes, other buildings, cars, trucks, trains, and airplanes) and for food storage. HFC-134a also is used as a specialty

propellant for aerosol sprays, especially when flammability is a concern. Another application for HFC-134a is as a "foam blowing agent," the material that helps expand, and is trapped inside, polymer foams, thereby contributing to foam properties such as insulation value. One important use for Arkema's HFC-134a is in making extruded polystyrene foam, which commonly provides insulation for residential, commercial, and industrial buildings.

5. Arkema sells its HFCs to customers and distributors in the aerosol, air-conditioning, automotive, commercial refrigeration, and foam-blowing industries. The U.S. Environmental Protection Agency ("EPA") regulates Arkema's HFCs pursuant to the Significant New Alternatives Policy ("SNAP") program and the regulations at 40 C.F.R. Part 82, Subpart G. Until recently, HFC-134a and Arkema's other HFC products were on SNAP's list of approved substances. But in the final rule ("the Final Rule") titled Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes Under the Significant New Alternatives Policy Program, which was published on July 20, 2015 at 80 Fed. Reg. 42,870, EPA "delisted" various HFCs, including HFC-134a, certain blends containing HFC-134a, R-404A, and R-507A, by changing

their status to unacceptable for particular applications in the aerosol, automotive, commercial-refrigeration, and foam-blowing sectors as described in the attached Exhibit A.

6. If the delistings in the Final Rule had been in effect over the past five years, they would have prohibited use of more than 50 percent of the total volume of HFCs supplied by Arkema in the United States. Arkema will continue selling the HFCs subject to the Final Rule for those uses that remain authorized, but now will be losing sales as a direct result of the Final Rule. Even in those applications that remain authorized, Arkema will lose revenue as suppliers compete for a shrinking demand and prices drop. Over time, moreover, the Final Rule will result in closure of manufacturing plants, as Arkema and other producers adjust to chronic excess capacity.

7. Aside from the materials that EPA banned under the Final Rule, Arkema makes and sells other substances subject to SNAP rules. Some of those are HFCs and some are not. But for all its products

subject to SNAP, Arkema needs objective standards so that it knows what is required and can act accordingly.

Dated: March 28, 2016

Matthew Ritter

Exhibit A: Status Changes by Sectors and End-Uses

AEROSOLS—PROPELLANTS

Substitutes	Decision
HFC-134a	Unacceptable as of one year from date of final rule, except for certain designated uses.

FOAMS

End-use	Substitutes	Decision*
Rigid Polyurethane and Polyisocyanurate Laminated Boardstock	HFC-134a and blends thereof	Acceptable subject to narrowed use limits for military or space- and aeronautics-related applications* and unacceptable for all other uses as of January 1, 2017. Unacceptable for all uses as of January 1, 2022.
Flexible Polyurethane	HFC-134a and blends thereof	Same as above.
Integral Skin Polyurethane	HFC-134a	Same as above.
Polystyrene Extruded Sheet	HFC-134a	Same as above.

End-use	Substitutes	Decision*
Phenolic Insulation Board and Bunstock	HFC-134a and blends thereof	Same as above.
Rigid Polyurethane Slabstock and Other	HFC-134a and blends thereof	Acceptable subject to narrowed use limits for military or space- and aeronautics-related applications* and unacceptable for all other uses as of January 1, 2019. Unacceptable for all uses as of January 1, 2022.
Rigid Polyurethane Appliance Foam	HFC-134a and blends thereof	Acceptable subject to narrowed use limits for military or space- and aeronautics-related applications* and unacceptable for all other uses as of January 1, 2020. Unacceptable for all uses as of January 1, 2022.
Rigid Polyurethane Commercial Refrigeration and Sandwich Panels	HFC-134a and blends thereof	Same as above.

End-use	Substitutes	Decision*
Polyolefin	HFC-134a and blends thereof	Same as above.
Rigid Polyurethane Marine Flotation Foam	HFC-134a and blends thereof	Same as above.
Polystyrene Extruded Boardstock and Billet (XPS)	HFC-134a and blends thereof	Acceptable subject to narrowed use limits for military or space- and aeronautics-related applications* and unacceptable for all other uses as of January 1, 2021. Unacceptable for all uses as of January 1, 2022.

* Under the narrowed use limit, use is limited to military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.

MOTOR VEHICLE AIR CONDITIONING—NEW LIGHT-DUTY SYSTEMS

Substitutes	Decision
HFC-134a	Unacceptable as of Model Year (MY) 2021, except for vehicles exported to countries with insufficient servicing infrastructure to support other alternatives, for MY 2021 through MY 2025. Unacceptable for all newly manufactured vehicles as of MY 2026.

RETAIL FOOD REFRIGERATION

End-use	Substitutes	Unacceptability Date
Supermarket Systems (Retrofit)	R-404A, R-507A	July 20, 2016
Supermarket Systems (New)	R-404A, R-507A	January 1, 2017
Remote Condensing Units (Retrofit)	R-404A, R-507A	July 20, 2016
Remote Condensing Units (New)	R-404A, R-507A	January 1, 2018

End-use	**Substitutes**	**Unacceptability Date**
Stand-Alone Units (Retrofit)	R-404A, R-507A	July 20, 2016
Stand-Alone Medium-Temperature Units[1] with a compressor capacity below 2,200 Btu/hour and not containing a flooded evaporator (New)	HFC-134a, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-507A	January 1, 2019
Stand-Alone Medium-Temperature Units with a compressor capacity equal to or greater than 2,200 Btu/hour and Stand-Alone Medium-Temperature Units containing a flooded evaporator (New)	HFC-134a, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-507A	January 1, 2020

End-use	Substitutes	Unacceptability Date
Stand-Alone Low-Temperature Units[2] (New)	R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-507A	January 1, 2020

VENDING MACHINES

End-use	Substitutes	Unacceptability Date
Retrofit	R-404A, R-507A	July 20, 2016
New	HFC-134a, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-507A	January 1, 2019

[1] "Medium-temperature" refers to equipment that maintains food or beverages at temperatures above 32°F (0 °C).

[2] "Low-temperature" refers to equipment that maintains food or beverages at temperatures at or below 32°F (0 °C).

Source: EPA Fact Sheet (July 20, 2015), http://www.epa.gov/snap/final-rule-protection-stratospheric-ozone-change-listing-status-certain-substitutes-under.